

WE CLAIM:

1. A surgical instrument, comprising:

a tubular member having a distal end and a proximal end;

a handle attached to the proximal end of the tubular member;

an end effector assembly having an end effector and an attachment

portion for releasably attaching to the distal end of the tubular member, the attachment portion having a protrusion for resisting detachment of the attachment portion and the tubular member; and

an actuator connected to the handle and the end effector assembly for actuating the end effector.

2. The surgical instrument of claim 1, wherein the tubular member has a hollow, coil-less structure.

3. The surgical instrument of claim 1, wherein the tubular member has a plurality of lumens.

4. The surgical instrument of claim 1, wherein the attachment portion has an inner wall and an outer wall having the protrusion.

5. The surgical instrument of claim 4, wherein the end effector assembly is attached to the distal end of the tubular member such that the attachment portion is inserted into the tubular member and the tubular member covers the outer wall of the attachment portion.

6. The surgical instrument of claim 5, wherein the protrusion of the outer wall is a threaded surface.

7. The surgical instrument of claim 5, wherein the protrusion of the outer wall is a stepped portion of the attachment portion.

8. The surgical instrument of claim 1, wherein the attachment portion has an inner wall having the protrusion and an outer wall.

9. The surgical instrument of claim 8, wherein the end effector assembly is attached to the distal end of the tubular member such that the tubular member is inserted into the attachment portion and the distal end of the tubular member is covered by the inner wall of the attachment portion.

10. The surgical instrument of claim 9, wherein the tubular member has a step-down portion between the distal end and the proximal end for providing a smaller diameter at the distal end than that at the proximal end.

11. The surgical instrument of claim 9, wherein the protrusion of the inner wall is a threaded surface.

12. The surgical instrument of claim 1, wherein the end effector assembly is a biopsy forceps assembly having a jaw support member, and the end effector is a pair of jaws hinged to the jaw support member.

13. An end effector assembly of a surgical instrument having an elongate tubular member, the end effector assembly comprising:

an end effector; and

an attachment portion connected to the end effector and configured to attach releasably to the tubular member, the attachment portion having a protrusion for resisting detachment of the attachment portion and the tubular member.

14. The surgical instrument of claim 13, wherein the attachment portion has an inner wall and an outer wall having the protrusion.

15. The surgical instrument of claim 14, wherein the attachment portion is configured to be inserted into the tubular member.

16. The surgical instrument of claim 15, wherein the protrusion of the outer wall is a threaded surface.

17. The surgical instrument of claim 15, wherein the protrusion of the outer wall is a stepped portion of the attachment portion.

18. The surgical instrument of claim 13, wherein the attachment portion has an inner wall having the protrusion and an outer wall.

19. The surgical instrument of claim 18, wherein the attachment portion is configured to cover the tubular member.

20. The surgical instrument of claim 19, wherein the protrusion of the inner wall is a threaded surface.

PROSECUTED BY
J. MICHAEL DUNNER
DUNNER, DUNNER & DUNNER
1000 I STREET, N.W.
WASHINGTON, D.C. 20004
(202) 408-4000